

FIGURE 1

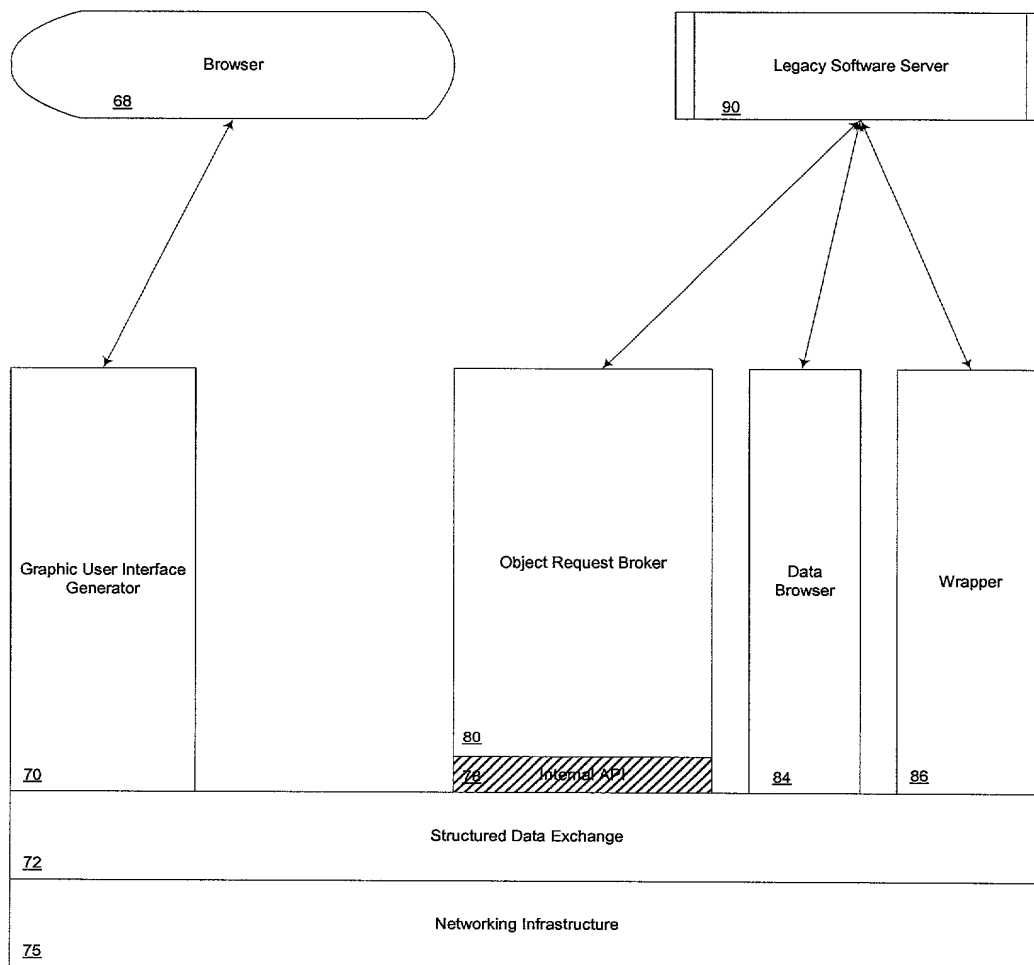


FIGURE 2



105

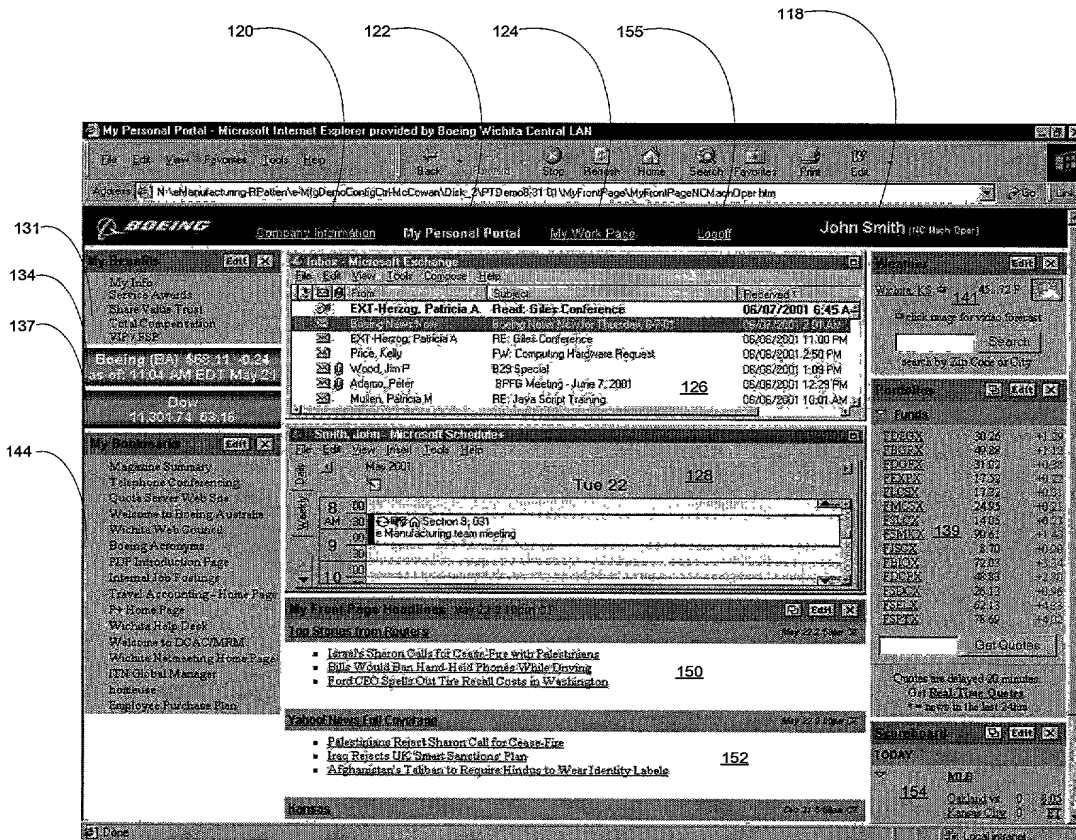


FIGURE 4

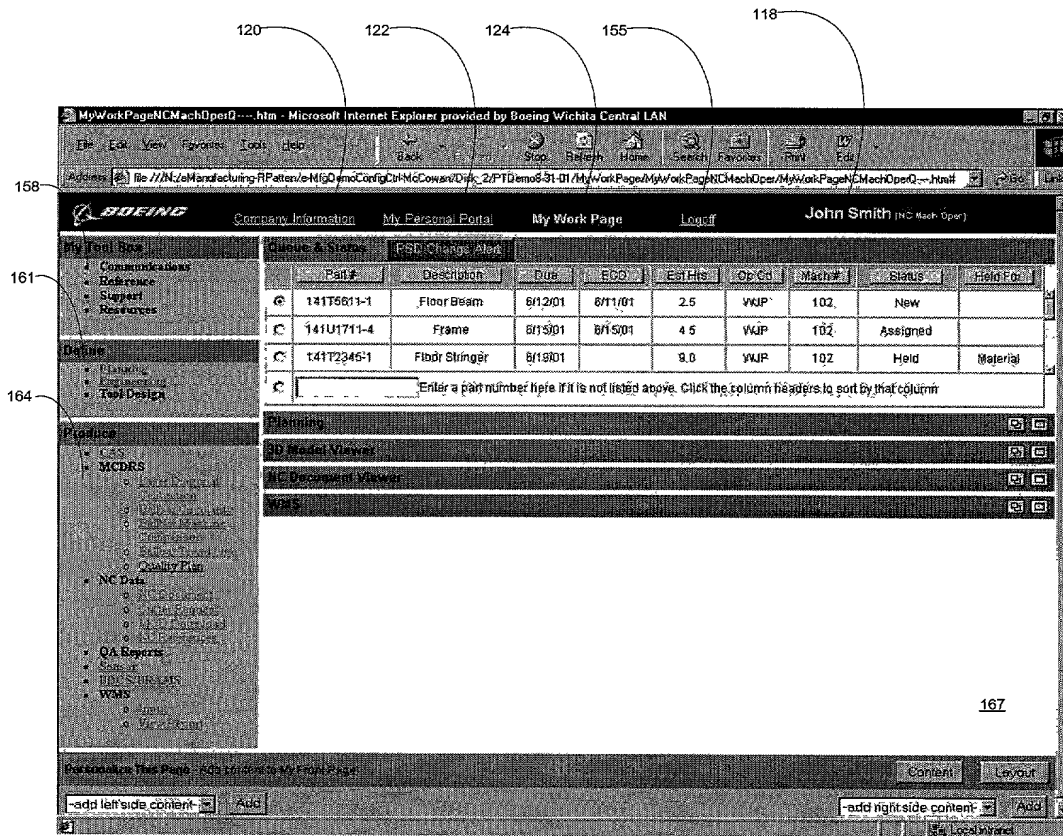


FIGURE 5

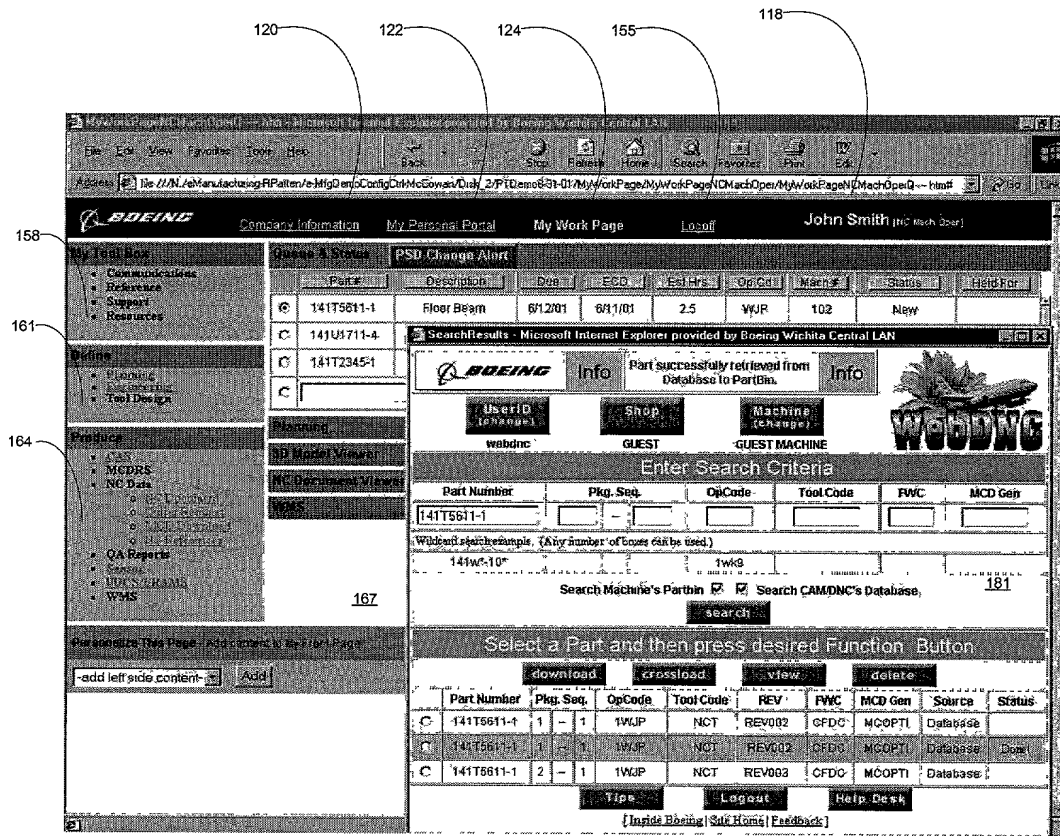


FIGURE 6

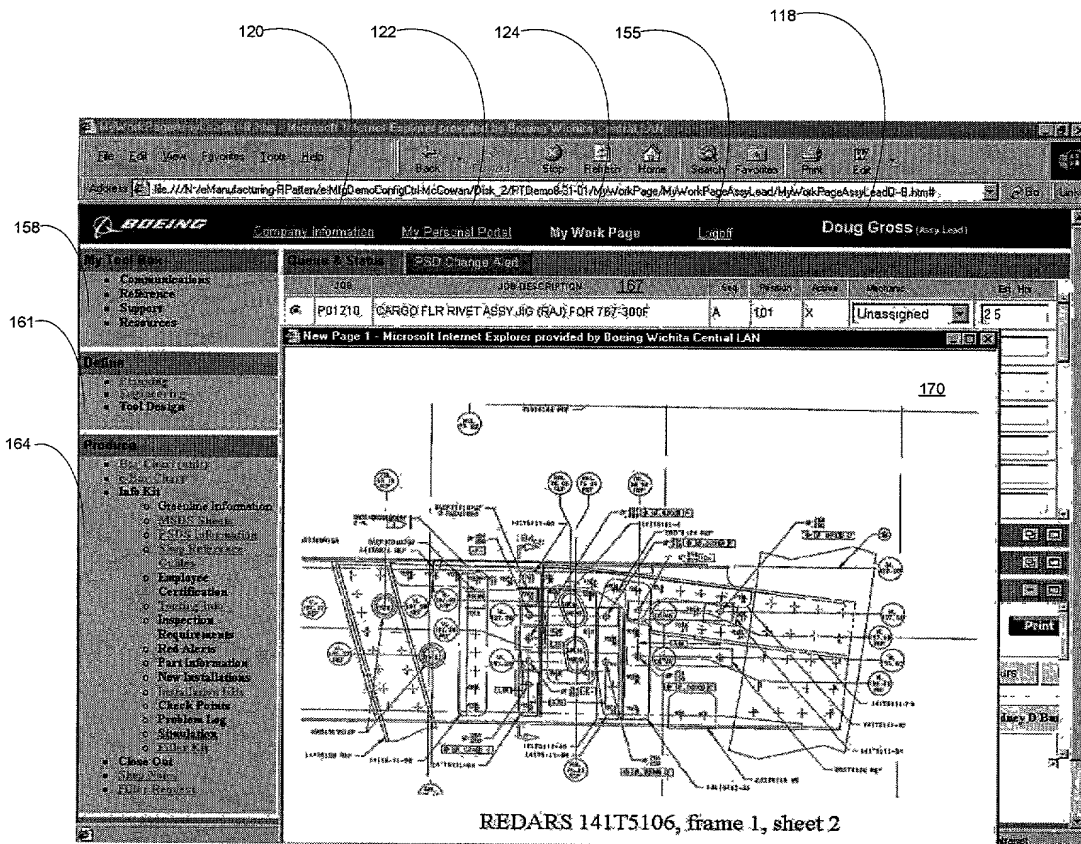


FIGURE 7

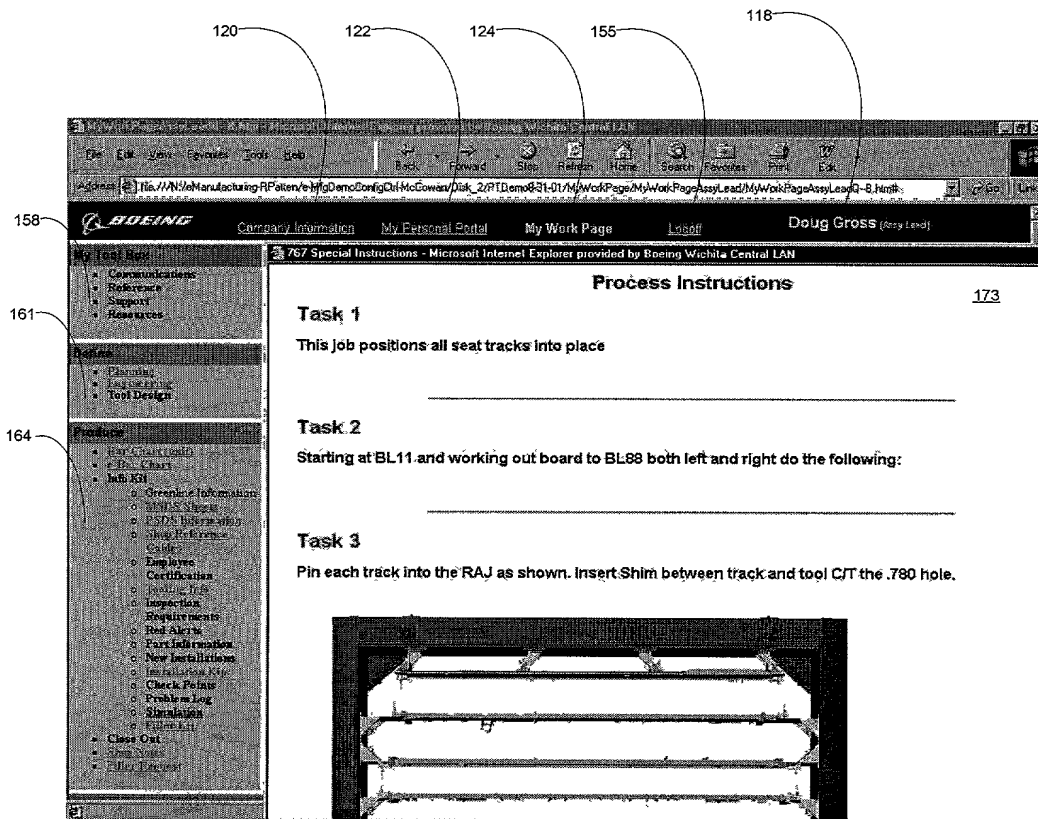


FIGURE 8

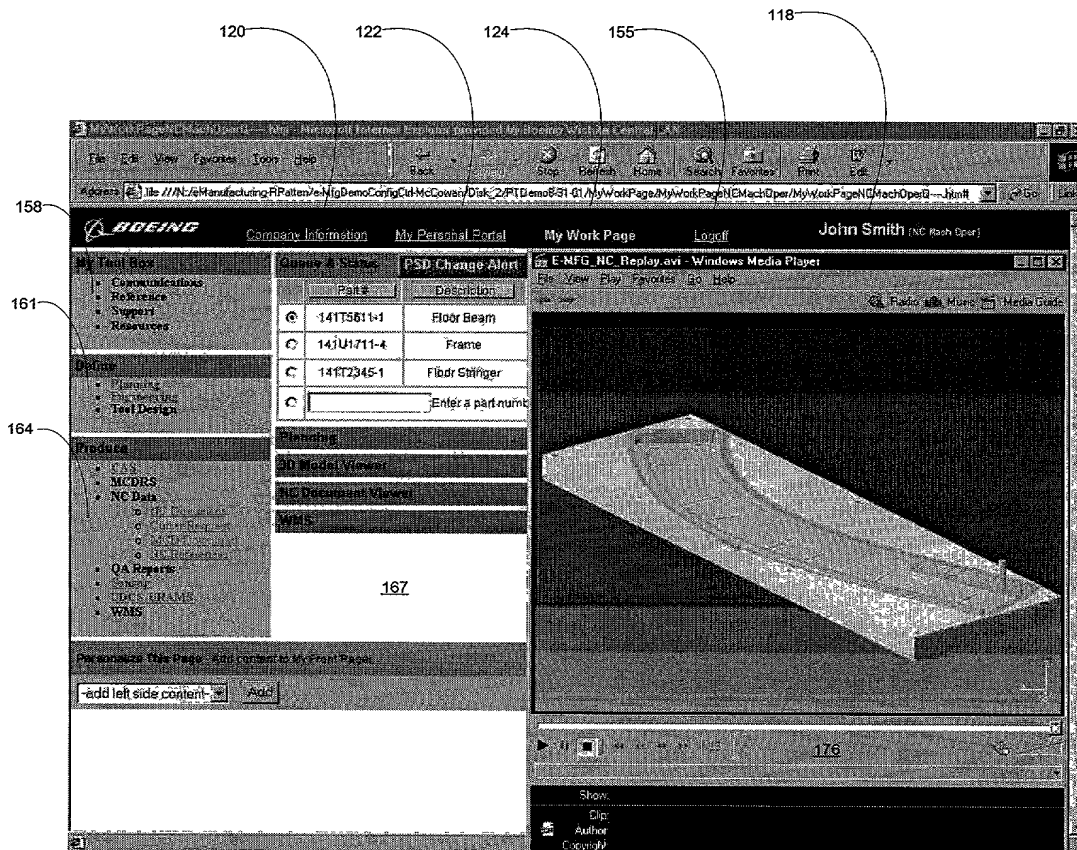


FIGURE 9

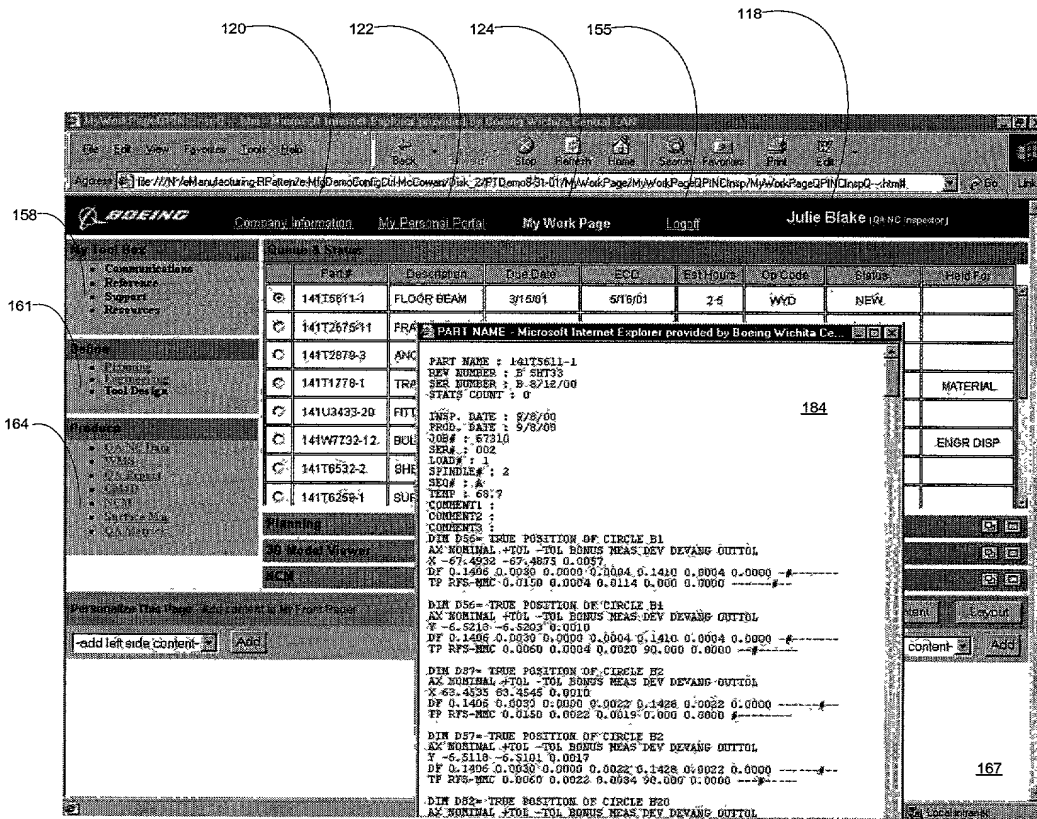


FIGURE 10

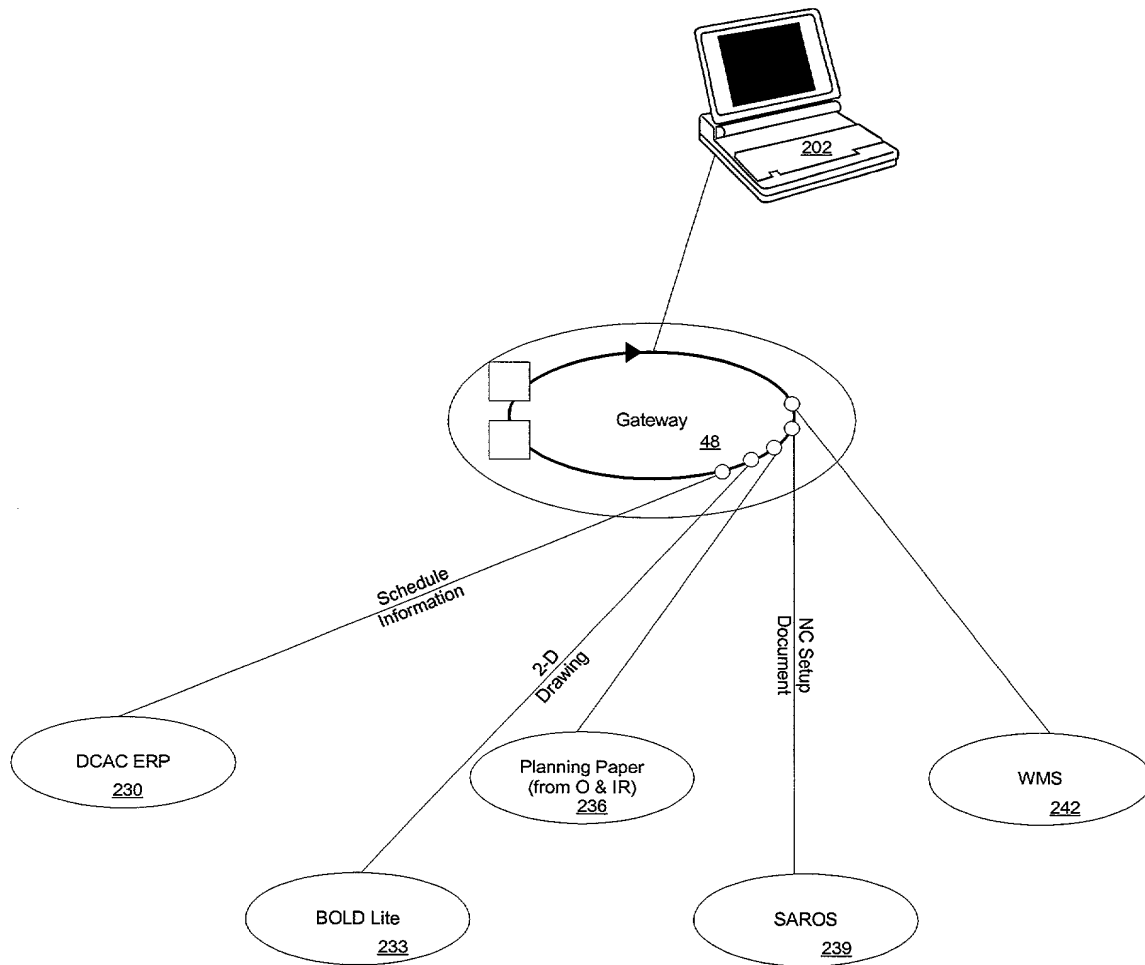


FIGURE 11

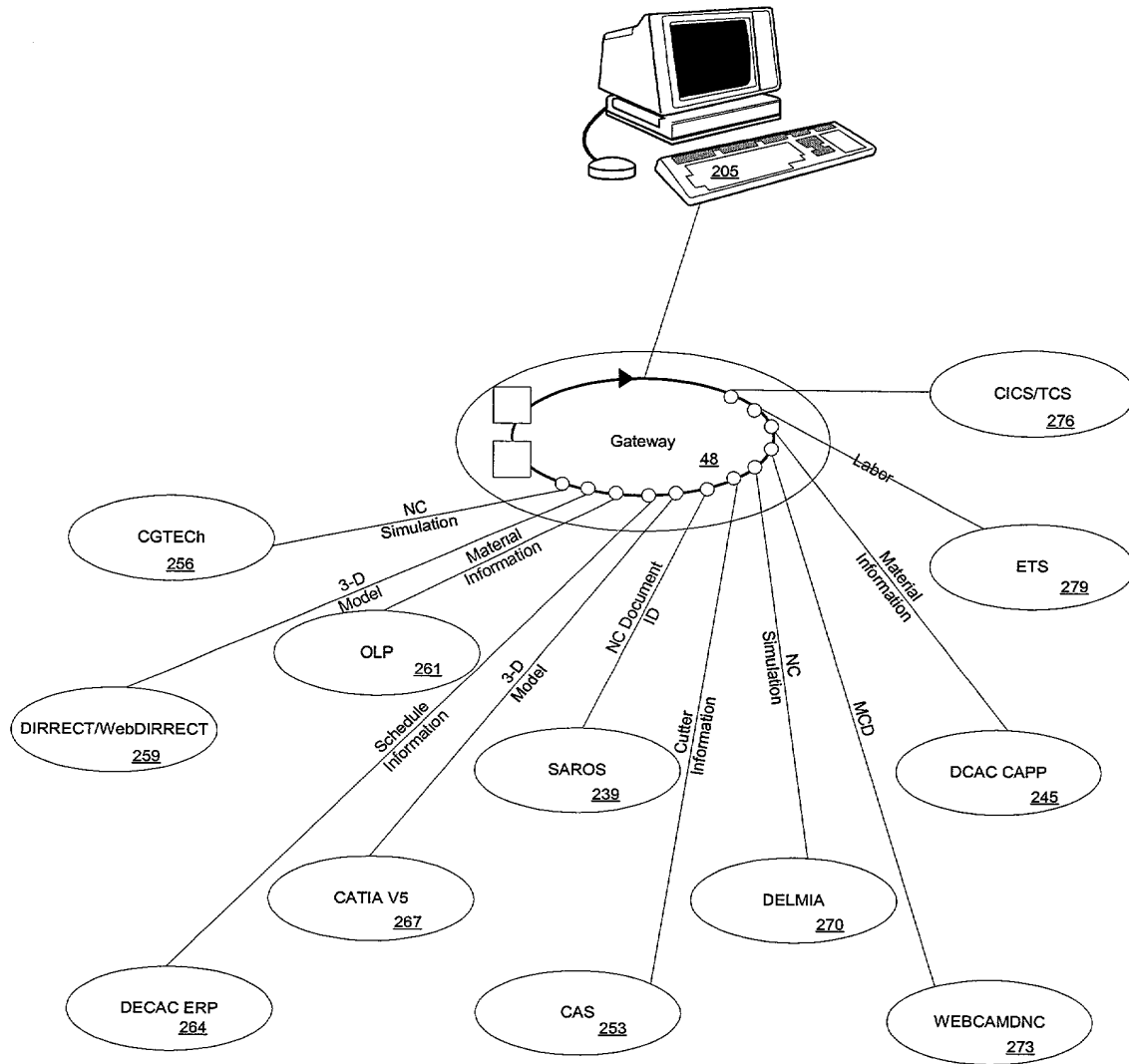


FIGURE 12

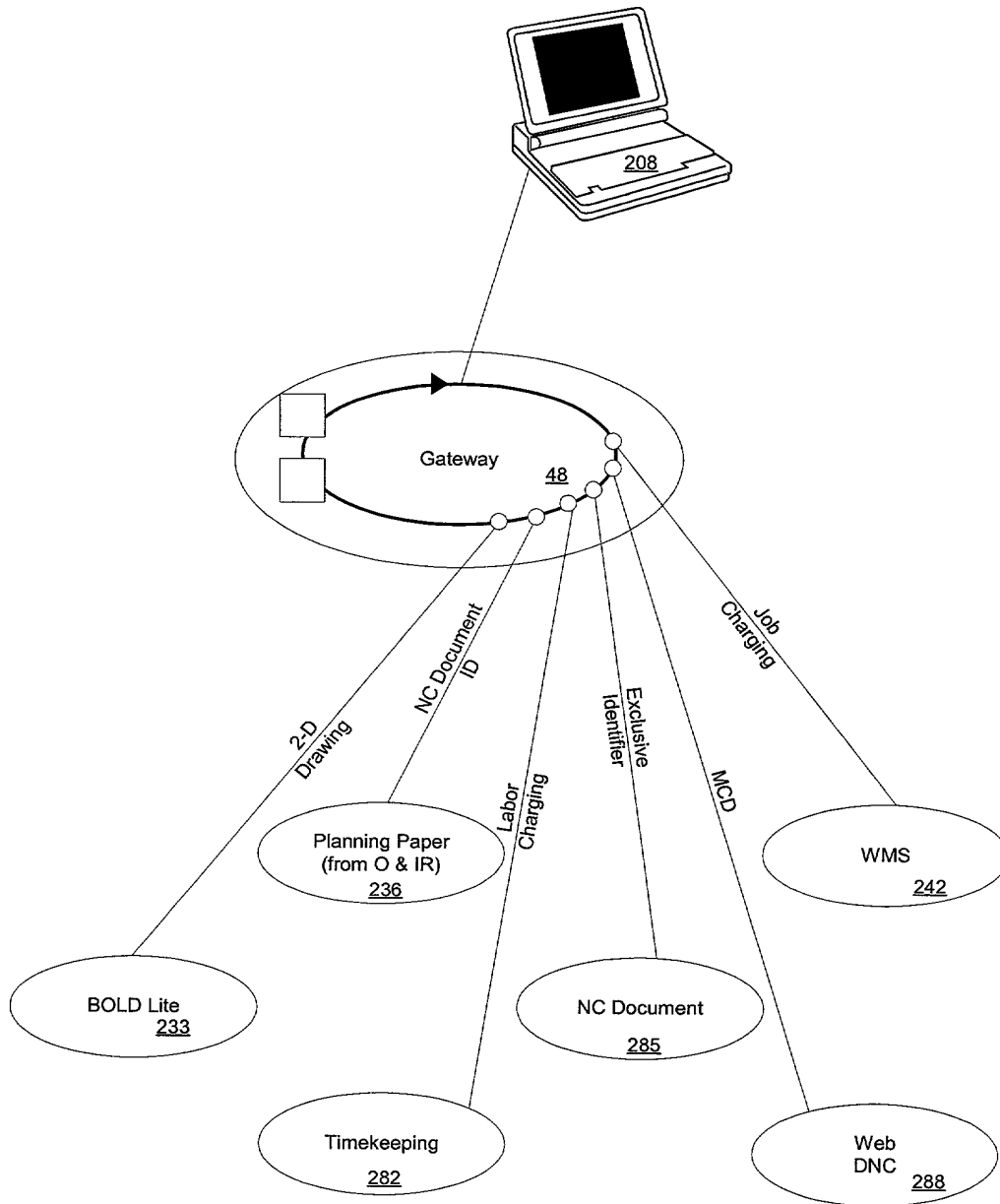


FIGURE 13

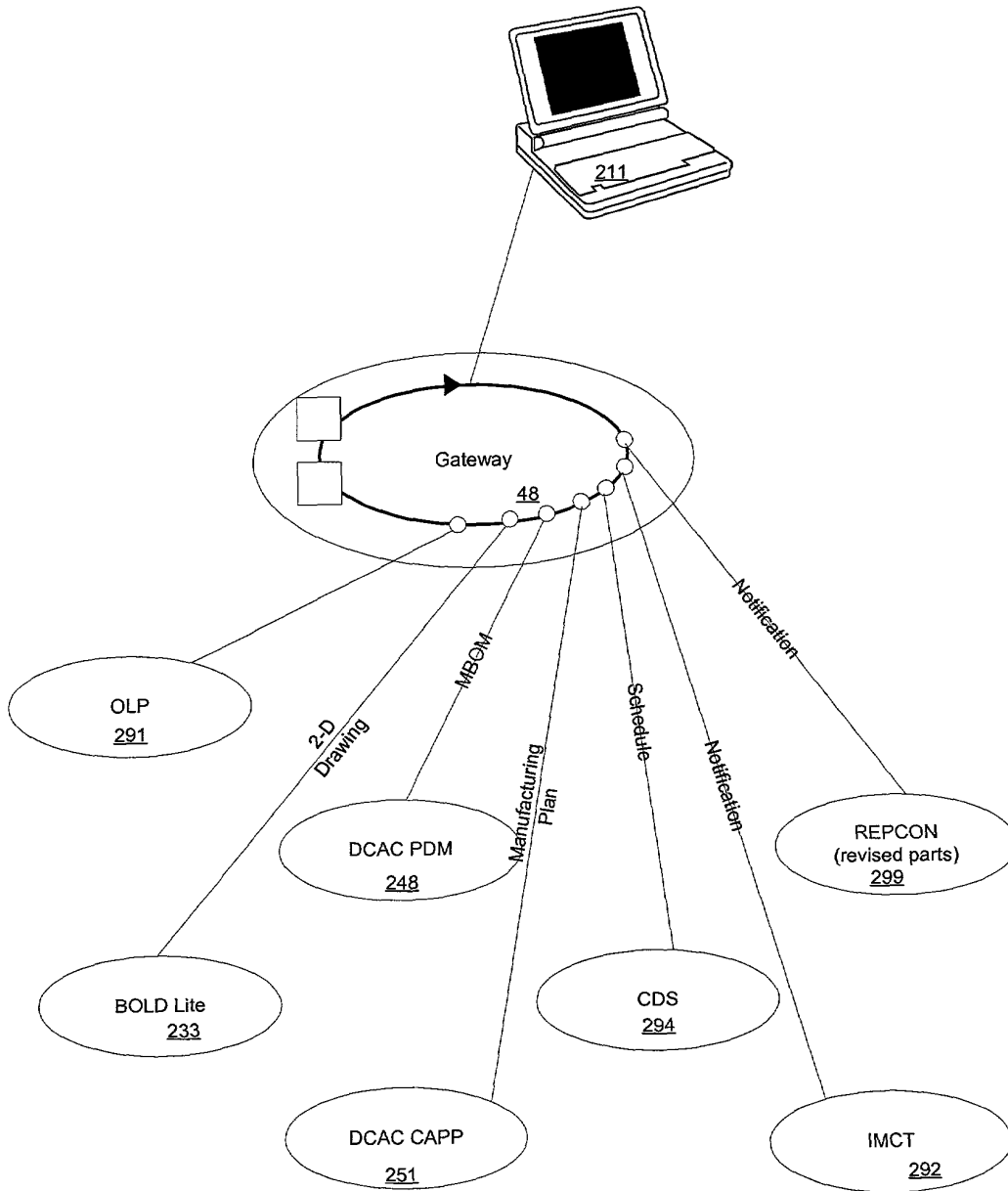
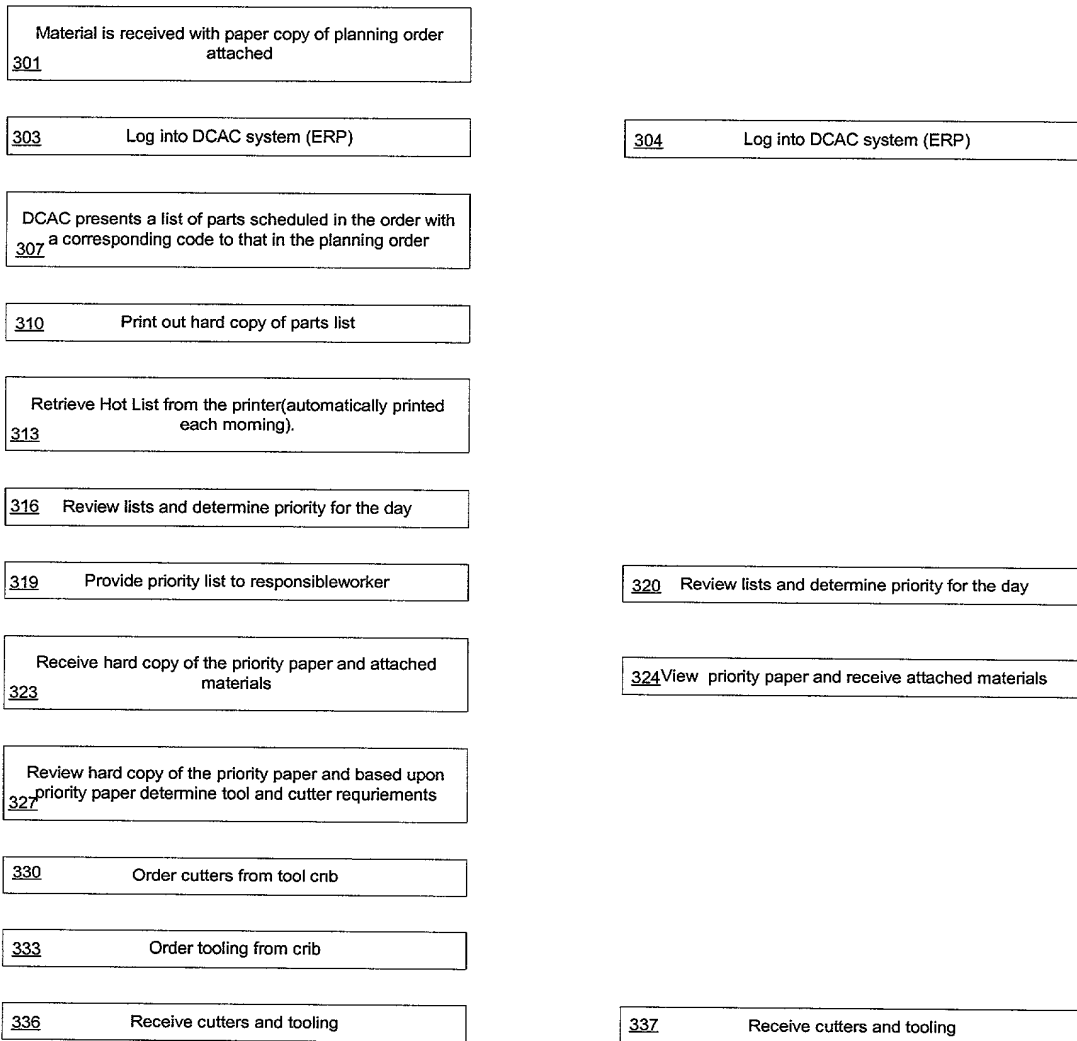


FIGURE 14



NC Part

FIGURE 15A

NC Part

NC Part

NC Part

340 Log onto WMS

343 Select the Job to be performed from list presented

346 Select Setup Time

349 Retrieve Set Up document from file cabinet

352 Compare Exclusive Identifier between the NC Document
and the Planning Paper

335 Log into DNC and get Mac

338 Pull up WMS Screen

340 Select Part Number and
enter number of parts completed

344 Tear Down Machine

347 Transportation takes part to CMM where measurement
and Quality Control checks are performed

350 Clock job closed

341 Select Part Number and
enter number of parts completed

351 Clock job closed

FIGURE 15B

the Machine shop lead (or manager) can save 33 minutes per shift per day on the machine load and assign job functions.

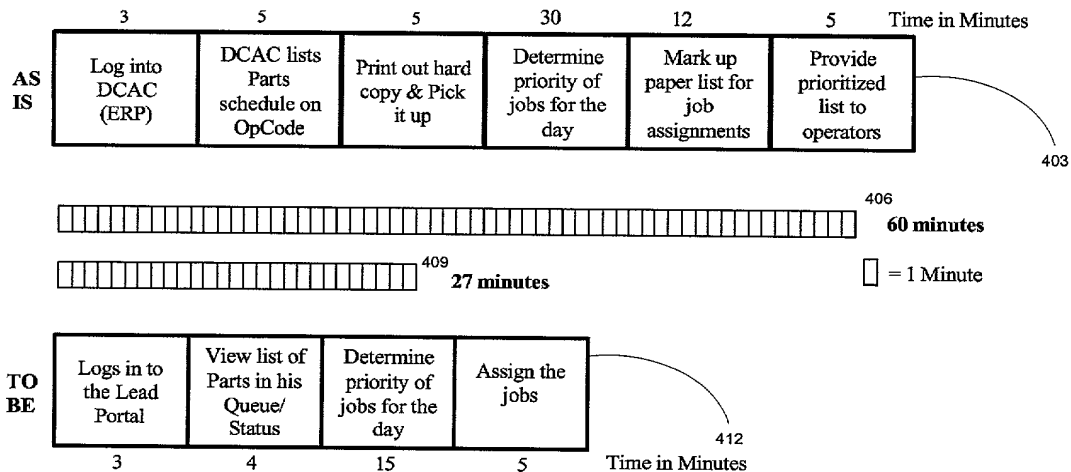


FIGURE 16

**the Machine shop
 lead (or operator) can save 13 minutes per order with respect to
 gathering data or tool information.**

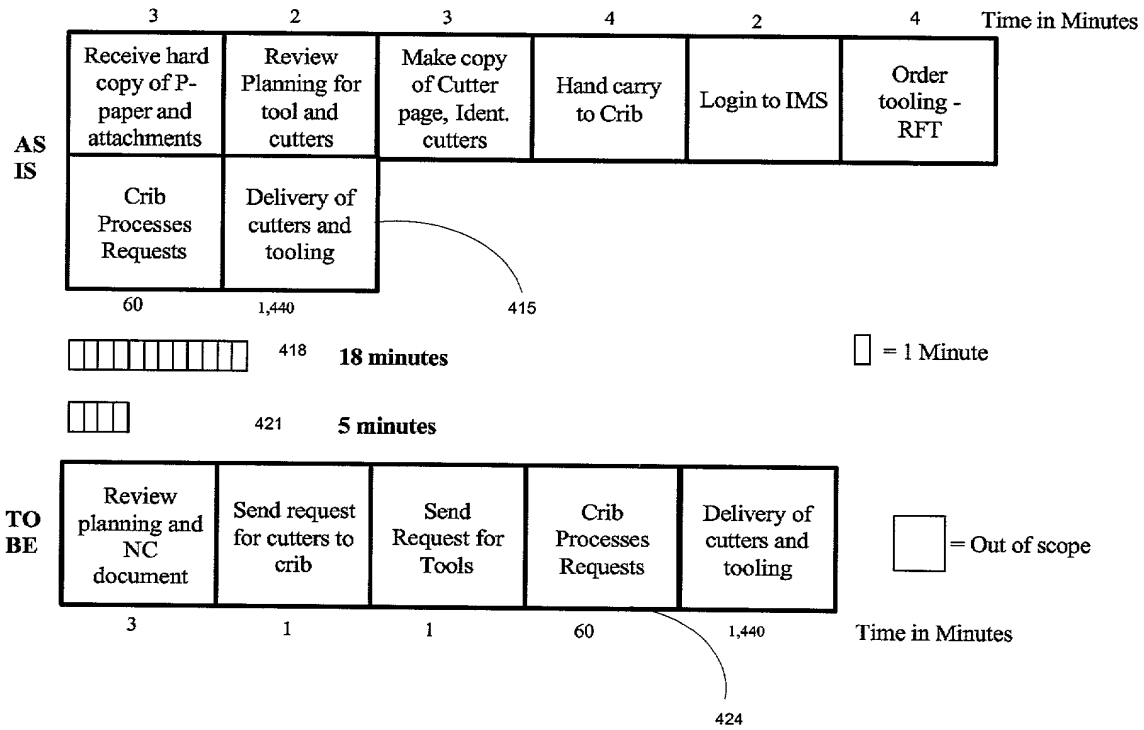


FIGURE 17

the Machine Operator
12 minutes, per order, on the NC machine part process.

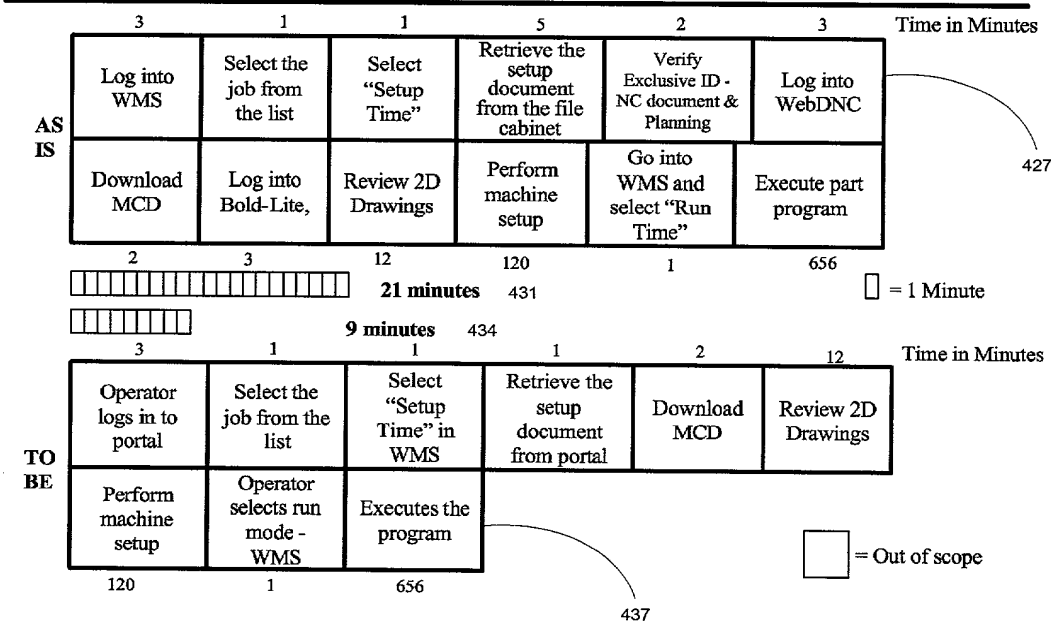


FIGURE 18

The Machine shop operator / lead should also be able to save 8 minutes per order with the finish and close processes.

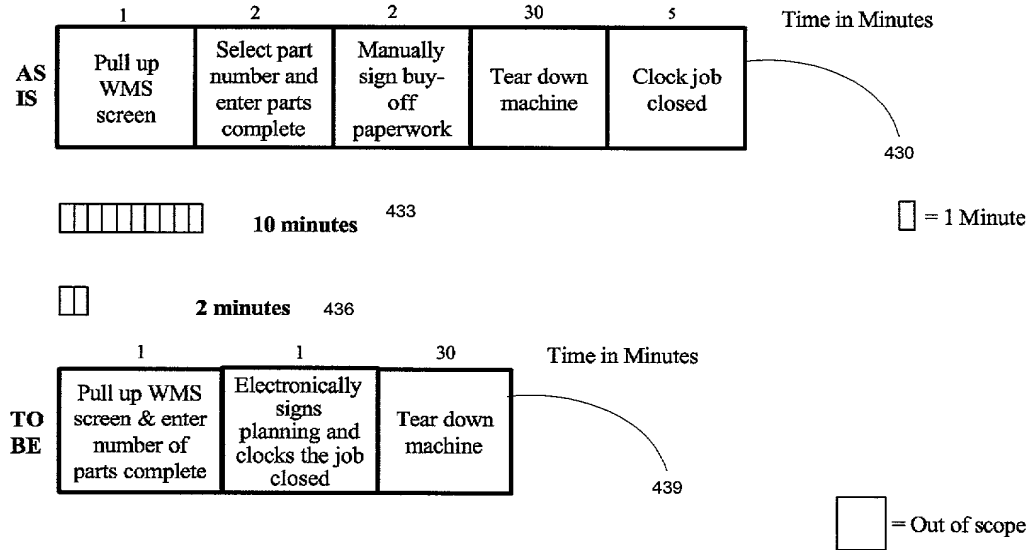


FIGURE 19

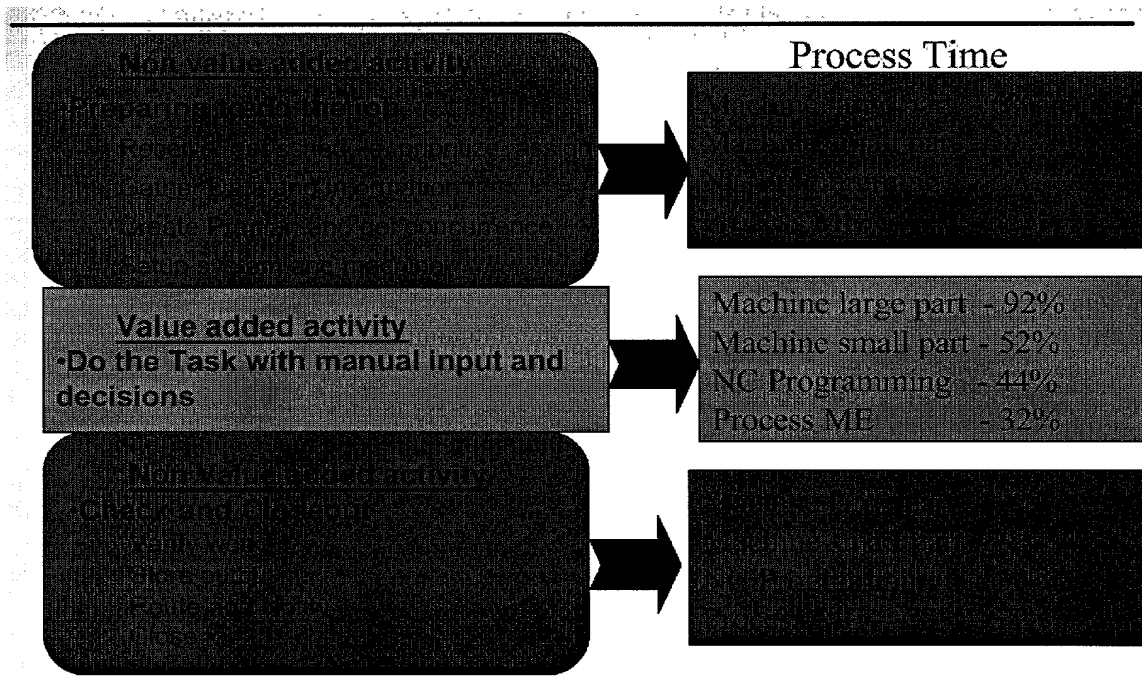


FIGURE 20

Review the current process for producing a product cataloging all steps by all persons
and all systems and machines

501

Group the steps in the process into redundant, repetitive,
or including "human porting"

504

Optimize the steps in the process, to minimize "human-necessary" steps

507

Design software architecture to allow porting between "legacy software servers" and
to browser.

510

Supplement the "raw" engineering data presented to the operator with recorded pictures
of the process properly performed

513

Supplement the browsing interface with "real time"
views of critical aspects of workpiece

516

Present operator with the resulting browser interface as a controlling means for
production

519

FIGURE 21